

Remarks

Claims 1-23 remain pending in this application for which applicants seek reconsideration. Claims 11, 12, and 23 have been withdrawn as directed to a non-elected invention.

Amendment

The title of the invention has been amended as suggested by the examiner. Figs. 20 and 21 now include the legend "Prior Art" to overcome the drawing objection. Claims 2-8, 13-18, and 20-22 have been amended to improve their form, readability, and to remove all the informalities identified by the examiner and to overcome the § 112 rejection. In this respect, the term "ultrasonic" has been changed to --ultrasonic wave-- throughout the claims.

Claim 1 has been canceled, claims 2 and 6 have been placed in independent form, and independent claims 13 and 20 have been amended to more clearly recite the control means (claim 13) and the signal analyzing means (claim 20). Non-elected claim 24 has been canceled to avoid a claim surcharge. No new matter has been introduced.

Claim Objection

Regarding the language "for controlling an obtaining timing of the received ultrasonic signal" in claim 13, applicants submit that this language is adequately defined in the specification on page 50, line 10 to page 51, line 21, and is deemed grammatically acceptable. As to the examiner's inquiry on whether the "signal analyzing means" paragraph in claim 13 should precede the "control means" paragraph, applicants submit that these paragraphs are in the proper order.

Applicants submit that the editorial revisions made to the claims overcome this objection, as well as § 112 rejection.

Allowable Claims

Claims 14-19 have been indicated to be allowable if they are placed in independent form. As applicants believe that parent claim 13 itself is in condition for allowance, these claims have not been placed in independent form.

Applicants also note that no art rejection has been applied to claims 2-5. As these claims have been amended to overcome the claim objection and the § 112 rejection, applicants submit that these claims are also in condition for allowance.

Art Rejection

Claims 1, 13, and 20 were rejected under 35 U.S.C. 102(b) as anticipated by Phinney I (USPGP 2002/0079644, now USP 6,520,498). Claims 1, 13, and 20 were rejected under § 102(e) as anticipated by Phinney II (USP 6,511,064). Claim 1 is no longer at issue since it has been canceled. Applicants, however, traverse these rejections because Phinney I and II would not have disclosed or taught the control means and signal analyzing means as set forth in claims 13 and 20.

Claim 13 calls for at least one of altering an obtaining timing or a characteristic of an ultrasonic wave to adjust the amplitude of a received ultrasonic signal. Claim 20 calls for analyzing a convergence time required for convergence of a received ultrasonic signal output by ultrasonic receiving means. As Phinney I and II do not disclose or teach these features, applicants respectfully submit that Phinney I and II would not have anticipated or rendered obvious claims 13 and 20.

Claims 6-10 were rejected under 35 U.S.C. 103(a) as unpatentable over Pearce (USP 4,066,969). Applicants also traverse this rejection because Pearce would not have disclosed or taught at least the first double feed determining means.

Claim 6 calls for a first double feed determining means for determining whether double feed occurs based on the amplitude of the received ultrasonic signal. The examiner notes that elements 23, 24, 28, and 30 of Pearce correspond to the claimed phase information obtaining means, phase information holding means, and comparing means. Applicants disagree because Pearce's double feed determining means solely relies on the phase of the received ultrasonic signal. As Pearce fails to disclose or teach determining double feed based additionally on the amplitude, as set forth in claim 6, applicants submit that Pearce would not have disclosed or taught claim 6 within the meaning of §§ 102, 103.

Claim 6 further calls for performing a phase comparison of the phase information obtained with a sheet positioned between the ultrasonic transmitting means and the ultrasonic receiving means and the stored basic phase information, which includes the phase information of the received ultrasonic signal with no sheet positioned between the ultrasonic transmitting means and the ultrasonic receiving means. None of the applied references would have disclosed or taught such a feature set forth in claim 6.

Conclusion

Applicants submit that claims 2-10 and 13-22 patentably distinguish over the applied references and are in condition for allowance. Should the examiner have any issues concerning this reply or any other outstanding issues remaining in this application, applicants urge the examiner to contact the undersigned to expedite prosecution.

Respectfully submitted,

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DATE

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REG. NO. 34,079 (RULE 34, WHERE APPLICABLE)

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